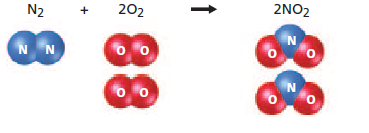
A **chemical reaction** forms a **new material**.

Four ways to tell if you are witnessing a chemical reaction (from bonds breaking or joining):

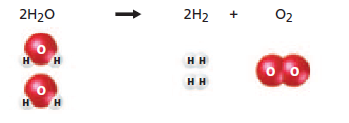
1. Formation of a gas
2. Formation of a precipitate
3. Change in temperature
4. Change in color

**Reactants → Products**

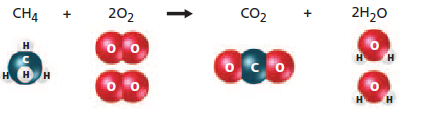
**Synthesis reaction**: a new compound is formed by the combining of simpler reactants.



**Decomposition reaction**: a reactant breaks down into simpler products.



**Combustion reaction**: one reactant is always oxygen and the other reactants often contain hydrogen and carbon.



The rate of a chemical reaction is affected by:

1. Temperature
2. Surface area
3. Addition of a catalyst
4. concentration